

**ABSTRACT**

The present invention relates to a method and system for conducting a magnetic resonance fluid flow study by conducting a labeling procedure and a control procedure and combining datasets from those procedures to create a dataset for the fluid flow study.

- 5 An amplitude modulated magnetic field gradient and amplitude modulated RF irradiation may be applied during a labeling procedure. Likewise, amplitude modulated RF irradiation may be applied during a control procedure. An amplitude modulated magnetic field gradient may also be applied during the control procedure.